Journal for Social Science Archives

Online ISSN: 3006-3310
Print ISSN: 3006-3302
Volume 3, Number 2, 2025, Pages 984 – 1001
Journal Home Page
https://jssarchives.com/index.php/Journal/about

A Preliminary Archaeological Assessment of Cultural Material from the Gurha Shahan, District Rawalpindi, Pakistan

Sadeed Arif[1], Waqas Uzair[2], Idrees ul Mulk[3], Amna Meharban[4], Ifra Batool Kiani[5]

[1]*Taxila Institute of Archaeology and Civilizations, Email: Sadeed@qau.edu.pk*
[2]*School of Archaeology and Museology, Sichuan University, Chengdu, China, Email: waqasuzair@stu.edu.scu.cn , waqasuzair163@gmail.com*
[3]*Taxila Institute of Archaeology and Civilizations, Email: idreesulmulk22@gmail.com*
[4]*Taxila Institute of Archaeology and Civilizations, Email: amnamehrban.123@gmail.com*
[5]*Taxila Institute of Archaeology and Civilizations, Email: meifrabatool@gmail.com*

ARTICLE INFO

Article History:

Received:	*April*	*08, 2025*
Revised:	*May*	*17, 2025*
Accepted:	*June*	*04, 2025*
Available Online:	*June*	*19, 2025*

Keywords:

Gurha Shahan; Potohar Plateau; Soan Valley; surface survey; material culture; preliminary archaeological assessment

Corresponding Author:
Sadeed Arif
Email:
Sadeed@qau.edu.pk

ABSTRACT

The site covered in this report is a Gurha Shahan site in the Rawalpindi District of the Punjab north of Pakistan, in the wider Soan valley landscape. The research relies on field research which is not invasive and the archaeological remains of the site are examined systematically. The recorded collection includes pottery fragments, stone tools and lithic debitage, slag, and fauna, and suggests a variety of domestic, subsistence, and small-scale productive endeavors. Each of the materials discussed in this paper is housed in the Taxila Institute of Archaeology and Civilizations (TIAC), Quaid-i-Azam University, Islamabad, Pakistan. Pottery is mainly utilitarian, mostly and mostly handmade, body, rim and base sherds that have plain and painted surface treatments. Flakes, cores, debitage, and ground stone tools are lithic materials that represent several steps of the stone tool production and utilization. Fragments of slag that are irregular and vesicular in form are in line with the low level of metallurgical work, whereas fragmented fauna remains can be interpreted as animal processing and consumption. Due to the superficially derived and reconstructed nature of the assemblage, no conclusive cultural or chronological assumption is put forward. The Gurha Shahan site can therefore be viewed as a multi period site indicating repeated human interaction with favourable landscape environment. This report indicates the importance of documenting in a systematic manner small and hitherto poorly documented sites to know more about the long term technological practices and land use approaches on the Soan Valley and the neighboring Potohar Plateau.

Introduction

The Soan Valley of the north of Punjab lies in the middle stage of discourse on the beginning of human activity and the long term evolution of culture in Pakistan. Archaeological studies carried out on this area have recorded a clustering of Palaeolithic sites, which show a pattern of sustained human activities on the landscape including stone tool manufacture, subsistence and exploiting the landscape resources. The latter researches have indicated that ecological factors such as the availability of water sources and raw materials, which were favourable in the Soan Valley, were used to sustain human activity and technological continuity (Dennell, 2008)

In this wider local frame of reference, archaeological studies now define some significant localities in the Gurha Shahan hinterland. The use of detailed palaeo-environmental[1] and archaeological examination of nearby locations, such as PS-4B and PS-21[2], has given good evidence on the early stone tool industries and environmental factors under which the technologies evolved (Saleem, 1987). These excavations prove the Gurha Shahan region was a component of a broader cultural environment, which was defined by prolonged settlement and high frequency of usage, but not by single or temporary location.

The cultural importance of Gurha Shahan was also brought out by early regional scholarship. Saleem recognized the area as a key location in learning more about the long term cultural evolution as well as lithic culture within the Soan valley and stressed that the technology of stone tools and the recurrence of favorable landscape environments were persistent (saleem, 1978). It is one of the first attempts to locate Gurha Shahan into a wider cultural and technological context instead of considering it as an independent location.

Following the author on this view was further research in which he extended the human activity environmental and hydrological influence on the shape of human activity in the Soan Valley and nearby Potohar landscapes. Specifically, water resources were found to be the major factor affecting the location of settlement, movement patterns, and the structure of human activity in the country (Saleem, 1986). These findings are particularly applicable to Gurha Shahan which is situated in an environment with seasonal water courses and environmental variability would have organized the patterns of occupation and resource utilization.

Although its role in the previous research is recognized, Gurha Shahan was not systematically documented by archaeologists in the last several decades. Most of the available information is based on regional surveys and comparative studies, and surface material recording, and relevant assemblages are not well documented. This gap is currently attempted to be bridged by the present report, which will give a preliminary archaeological evaluation of the Gurha Shahan site based on non-invasive observations of the site surface and the analysis of curated materials. This paper will help to understand more about long term human activity and technological practices at the Soan Valley by recording the material evidence relating to the site and contextualizing it in both regional and historical contexts.

[1] Palaeo-environment: This is the reconstruction of the past environments based on geological, archaeological and ecological evidence.

[2] PS-4B and PS-21: Codes of archaeological sites that were given during routine excavations of Soan Valley. These are localities around Gurha Shahan in the District of Rawalpindi, which contain assemblage of Palaeolithic stone tools which have been mentioned in relation to the palaeo-environmental conditions in the region and early human activity.

Location and Environmental Context

The Gurha Shahan site in the Rawalpindi District of Pakistani Punjab in the larger Soan Valley and is located on the eastern fringes of the Potohar Plateau. The Soan Valley is an archaeologically important area that has long been known to have traces of repeated human presence in the area since the Palaeolithic period. Through archaeological studies undertaken in the valley, a continuity of human habitation has been adopted with the production of stone tools, agricultural activities and the exploitation of the local environmental resources. It is known that the area was a component of a larger cultural and environmental complex which is confirmed by the records of the localities of Palaeolithic presence in the surroundings of Gurha Shahan like PS-4B and PS-21 (saleem, 1978; Saleem, 1987). Such places show that the area was not occupied occasionally but was occupied severally because of good ecological conditions such as availability of water sources, raw materials and movement routes. In this more general context, Gurha Shahan may be considered as a part of a network of other archaeological sites that represent the long-term relations of humans with the Potohar environment.

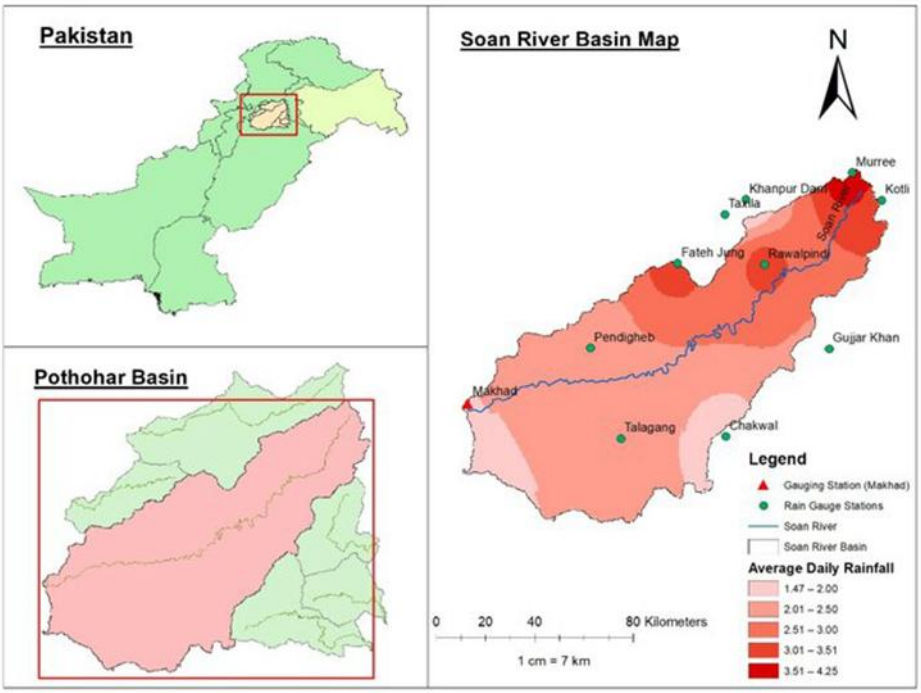

Figure 1.Map of the Soan Valley Potohar Basin: Source (Muhammad Tariq Khan, 2021).

Geomorphologically, the Potohar Plateau is a unique upland region characterized by a topographic surface that has a slightly wavy topography, cutting across by seasonal drainage channels and has climatic characteristics of semi aridness. These environments are observed to present promising conditions of long term and repetitive human activity because of the synergistic presence of water resources and arable land, as well as, the availability of raw materials especially in riverine and interfluvial environments in the northern part of South Asia (Dennell, 2008; Singh, 1971). Soan Valley is one of the most noticeable manifestations of this kind of landscape, in which the natural channels and run-offs organize the pattern of movement and activity.

Gurha Shahan on its part is in a somewhat high place in the local topography so that it commands not only an overview of the surrounding terrain; it is also close to natural pathways of movement. The archaeological and landscape based research established that the sites that included the elevation and access to movement routes were often chosen in order to have the repeated or task

specific activities, especially the activities that involved production, processing and exploitation of resources, as opposed to permanent architectural investment (Coningham, 2015; Haselgrove, 1981). These sites have also been construed as strategic locations in the larger systems of mobility as opposed to permanent residential settlements.

In addition to the topographical benefits of the immediate area, the broader environmental conditions at Gurha Shahan would have enabled the adoption of flexible land-use practices, which would have enabled the human groups to utilize the various ecological areas within a comparatively limited area. Seasonal drainage channels did not only create a temporary and episodic source of water, but also organized patterns of movement, timing of activities as well as resource access. Similar hydro geo-physical conditions in semi-arid South Asia are proven to be categorical in defining settlement location, land-use intensity as well as site reuse overtime (G. Possehl, 2002; Saleem, 1986; Wright, 2010).

The geological and geomorphological make-up of the Potohar Plateau also indicates an easy access to raw materials of stone that could be used to produce lithic tools, clay and mineral materials used in the manufacture of ceramics and early crafts. The proximity between settlement zones and raw material origin reduces the logistical expenses and encourages the emergence of small, scaled areas of activities integrating domestic, productive, and subsistence-related activities. These arrangements have received extensive attention in archaeological literature pertaining to landscape and are typical of non-urban settings in which flexibility and mobility are major adaptive devices (Coningham, 2015; Rissetto, 2010).

Figure 1.Map of the Gurha Shahan site: Source Google Earth Pro

Besides topographical benefits, the larger environmental context of the Gurha Shahan location would have allowed the effective application of flexible land use strategies, allowing communities to utilize various ecological zones of a rather limited territory. Not only did the seasonal drainage channels[3] offer temporary sources of water but they organized modes of movement, schedules of activities, and acquisition of resources. Similar hydrological settings have been observed to

[3] Temporary watercourses are seasonal drainage channels that only exist when it is raining and are no less significant to settlement location and movement pattern in semi-arid regions.

determine settlement patterns and location use in semi arid South Asia.(G. L. Possehl, 2002; Wright, 2010).

Gurha Shahan within the larger Potohar and Soan Valley system can thus be viewed as a subset of a network of small scale localities that are all telling us about how we occupy, move and practice technology not only in relation to big urban centres or big monuments. The sites are especially good at restoring some part of the everyday life, decision making, and adaptive mechanisms that are not so well represented in the archaeological accounts of the regions in question that concern large or stratified settlements (Dennell, 2008; G. L. Possehl, 2002). It is the environmental and topographical context of Gurha Shahan, therefore, that offers a critical background to the interpretation of the archaeological materials related to the site and to the way in which the latter has been situated in patterns of human activity in the Potohar landscape over the long term.

Aims and Scope of the Study

The main objective of the report is to report and contextualise archaeologically visible materials on the surface of the Gurha Shahan site and to examine its archaeological potential within the context of the general environmental and cultural environment of the Soan Valley and the Potohar Plateau. The study is preliminary research to determine the nature and meaning of the site and its value by providing a framework of analysis and evaluation of the site, without reaching any conclusive conclusions about the cultural or chronological aspect.

This research takes a non-invasive method, where emphasis is made on material affiliation, geographical setting and technological peculiarities that are visible on the surface. The report can be used not only as a reference to future study but also as a guideline, being compiled through the integration of site-specific observations with the knowledge of regional archaeology.

The objectives of the study are specific, and it is to:

- document and feature descriptions of visible materials on the surface, such as pottery sherds, stone tools and lithic debris, slag pieces, faunal remains;
- establish the technological nature of the assemblage and especially the association of lithic, ceramic and metallurgical evidence;
- place the location of the Gurha Shahan site into its local archaeological context, by comparison with other previously examined locations in the Soan Valley and Potohar Plateau; and
- define essential research questions and priorities to direct the further studies, including the survey, excavation, and laboratory analysis.

This report is a first step in the research process and all the interpretations provided here are tentative. The archaeological interpretation of the Gurha Shahan site will have to be refined further through fieldwork and further analytical study.

Methodology

Archival archaeological data currently held at Quaid-i-Azam University, Islamabad, is also used in the present study. Before the official creation of Taxila Institute of Archaeology and civilizations (TIAC)[4], the Department of Archaeology used to be housed on the basement of the Department of Mathematics. After the department had been moved to a purpose-built building, and TIAC had

[4] However, before the creation of the Taxila Institute of Archaeology and Civilizations (TIAC), the Department of Archaeology of Quaid-i-Azam University occupied the basement of the Department of Mathematics. The move to a dedicated building allowed re-organizing and re-evaluating archaeological collections kept in archives.

been established, archived archaeological collections were rearranged systematically and reassessed. It was in the process that the material that was related to the Gurha Shaheen site was determined and set to be highly documented and analyzed thus constituting a substantive part of the methodology that has been used in this study. Besides surface based observations, the study also involves the examination of earlier excavated archaeological material now held in the possession of TIAC such as pottery sherds, stone tools, slag fragments, faunal remains as well as numismatic material. This assemblage was first identified and classified with the academic guidance of Dr. Sadeed Arif and Dr. Ashraf Khan whose experience provided the correct identification of the material types and the technological attributes.

This paper will be founded on a non-invasive archaeological location survey, using systematic surface examination, the use of classifications based on macroscopic materials, and photographic recording of the fixed artefacts. The main aim of the survey was to record the location, conservation status, and technological features of archaeological materials in Gurha Shahan site, at the surface level, without disturbing the archaeological material. The excavation or underground testing was not performed and all the materials were documented on site, and no artefacts were taken out of the site throughout the time of conducting this research.

Such non-invasive surface survey techniques are well known to be useful in the production of baseline archaeological information especially where the archaeological locations have some degree of under- or under-reporting or thereby endangered (Banning, 2002; Cherry, 1983). Here, the methodology to follow is that which places a great value on proper recording of the material associations and the indicators of activity observable, whilst consciously abstaining over-interpretation as is commonplace in best practice to surface-derived archaeological evidence.

The technological specifics and functional markers of the assemblage were in the spotlight of analysis instead of the definite cultural and date attributions. The idea is compliant with the standard archaeological approach in initial studies, where a superficial assemblage is employed to socially evaluate the likelihood of potential site and contend to be utilized in justified investigations later than to generate definitive meaning (Renfrew, 2016)

The assemblage was represented by high esolution photography to complement the descriptive information and allow visual comparison of the material with other materials of the location at the Soan Valley and Potohar Plateau. The hierarchical combination of the descriptive and visual documentation offers a clear-cut and replicable account that can be used in further comparative analysis within a greater archaeology of the region (Petraglia & Allchin, 2007).

Description of the Site

The Gurha Shahan site is a low relief archaeological site characterized by most by the existence of surface-based archaeological materials as opposed to architectural remnants or stratified dispensations. The location of the site is determined by the geographic habitation of these resources, and a concentration, a tendency that is nearly habitual in survey archaeology wherein obscure and repeatable, light intensity actions generate residual surface markings (Cherry 1983; Banning 2002).

Assemblage of the surface is made of sherds of pottery, stone artefacts, slag fragments, animal remains, and the occasional numismatic material, with no clear association in structures. These mixed and scattered surface arrangements are generally attributed to repeated occurrence in usage, use varying with the passage of time, and the mixing and dispersion of activities and functional roles, not just an occupation phase (Renfrew, 2016). This reading is in line with the initial

observations in the region as was noted by Saleem (1978) who insisted on the need to identify non-architectural spaces in the Potohar landscape.

The topography of the site is not that high which offers some practical benefits like better drainage and visibility of the place; however, it does not imply serious planning or the residential investment plans. Similar low profile locations have been construed as activity-oriented or task-specific locations in semi-arid landscapes, which may be production, processing or short term, but not permanent residence (Rosen, 1997).

The lack of features constructed at Gurha Shahan and its surroundings therefore is to be interpreted as a property of site performance as opposed to preservation restriction. The site philosophically interpreted within the approach of survey archaeology and the study of the region gives a surface-based locality with multiple periods in the past, which provides rich data to comprehend the practices of everyday life, the technological behaviour, and the adaptable utilization of the landscape in the Potohar region.

Material Culture

Pottery

Sherds represent an important part of the materials on the surface at the Gurha Shahan site. Ceramic substance covers bodies, bases and rims that are pieces of a vessel of different forms not one standardized vessel. All the sherds which are observed are off-the-wheel and seem to be handmade, which indicates the non-industrial nature of the production of ceramic materials.

The ceramic fabrics are coarse to medium-fine in nature usually tempered with visible mineral and sand inclusions. These characteristics of the fabric are commonly known to represent particular features of utilitarian ceramics, which were used in the domestic environment and not specialised, ceremonial, or elite (Rice, 1987). This lack of fine surface treatment, ornament, or finish also promotes this practical reading.

Technologically, the pottery assemblage is indicative of basic types of manufacture where the types of manufacturing were based on issues of durability and functionality, as opposed to issues of aesthetic quality. Other similar methods of forming are recorded in ceramic traditions of domestic production in a broad array of archeological settings, as vessels were produced on site to serve utilitarian purposes of household storage, food, and cooking (Orton & Hughes, 2013).

In general, the features of the pottery collection are indicative of either of the following as the routine household tasks performed either on the site or on the nearby area. The ceramics neither suggest specialised manufacture or prestigious consumption, nor do they correspond with the explanation of Gurha Shahan as a small-scale activity locality with recurrent household consumption.

Stone Tools

The lithic waste and the tools of stone are a recognizable and identifiable part of the surface assemblage at the Gurha Shahan site. The lithic material incorporates mainly pieces of worked stone and flakes that were made out of the local raw materials that were easily available. This is shown by the occurrence of flaking debris which forms evidence of the fact that stone tools might be made, repaired, or refined on-site, as opposed to being solely imported as finished tools (Rissetto 2010).

The lithic assemblage characteristics indicate that it was used functionally in cutting, scraping, and processing of organic material which is normally done during subsistence and household chores. Types of tools are generally attributed to the most common activities such as food production, hide working, and domesticity but not to the specialised or elite production.

The small numbers of stone tool technology and other types of material culture present there also indicate a flexible technological system instead of an abrupt shift in lithic traditions. Archaeological works have shown that stone implements do not tend to be abandoned abruptly in favor of later technologies, but evolve over time due to the need and meet the requirements of different materials (Odell, 2006). At Gurha Shahan therefore, the lithic assemblage comprises a functional and long-term element of the local technological practice, in line with the repetitive and task-related usage of the location.

Slag Material

Slag pieces compose significant element of the assemblage of surface at the Gurha Shahan site. The pieces of slag are not uniform in their form, and also have varying textures, and are also similar to by-products produced in activities related to metals. Their morphology seems to be related to small scale metal working as opposed to large, standardized, industrial scale production systems (Kunlong[1] & Yong, 2024).

The presence of slag in relation to the pottery sherds and the stone tools mean that the activities related to metal were incorporated into larger domestic and productive activities at the site. Instead of indicating specialised or spatially separated metallurgy, the slag material is directed to restricted or intermittent use of metal incorporated in the routine work of technology.

Archaeological studies have indicated that the early use of metals was frequently parallel to both existing lithic and ceramic traditions and that the technology was adopted gradually and under different circumstances than a sudden substitution of the current one (Craddock, 1995). In this context, the slag waste of Gurha Shahan can propose that they should be involved in a mixed technological regime whereby the metalworking practice did not replace the current practice, but instead supplemented the practices. Like other members of the assemblage, the slag material promotes the interpretation of site as a multi-activity locality defined by the flexible and small-scale production.

Faunal Remains

The Gurha Shahan site revealed fragmented faunal remains in the form of isolated bone elements on the surface of the site. Despite the fact that in number and stratified context they are few they probably are associated with subsistence-related activities, such as consumption and processing of animal resources.

The fragmentation patterns had been observed can be a consideration of a combination of factors, which include, but not limited to, butchery, marrow extraction and those that occur after deposition like trampling or being exposed to the surface. The zooarchaeological studies that have been done have shown that such fragmentation may indicate the activity of humans as well as the taphonomic processes that may occur in the environment, especially in surface assemblages where materials are prone to continuous disturbance (Reitz et al., 2008).

The thinness and discontinuous status of the animal material indicate that Gurha Shahan was not aivisceral site of animal processing but a site where the normal household activities were performed periodically. The food procurement, cooking and eating were probably a part of a more

concerted domestic activity on-site or in the surrounding area, which is also in keeping with the understanding of this place as a small-scale and activity-oriented locality, unlike a long term residential community.

Interpretation and Discussion

The occurrence of pottery and stone tools, slag residues, and fauna in the Gurha Shahan location are used to indicate that the locality was not a location geared towards one specific, or short-term activity. Archeological analyses have shown that surface-defined sites having several classes of material culture are frequently inherent of recurrent household and productive actions which are performed within adaptable settlement structures that require no significant architectural investment (Binford, 1980; Schiffer, 1987).

The extent to which slag fragments are spatially related to ceramic and lithic materials also indicates that activities related to metals were part of more important domestic and community activities. Instead of being characterised as specialised or industrial level production, the slag material is more aligned with the small scale, intermittent metalworking being a part of daily life. Archaeological and other ethnographic studies have revealed that early metal production in none urban situations is often carried out at a domestic or small-scale community level as an extension of productive household activity, and is not a specialised activity designated to specialised factory zones (Costin, 1991; Hirth, 2009). This is supported by the lack of architectural elements or industrial facilities in Gurha Shahan. interpretation.

The entire collection tells of a technologically diverse environment where the lithic tools, ceramics and metal-related materials were employed simultaneously. Recent archaeological debate is coming to the understanding that technological change is more of a process that can be described as continuous, adaptive, and selective, as opposed to a process that replaced previous ones suddenly and in a linear manner (Dobres, 2000; Lemonnier, 1992). This fact is corroborated by the Gurha Shahan material evidence that shows that there are multiple technological traditions in one activity landscape.

In a more general interpretive perspective, archaeological sites like Gurha Shahan have been emphasised as to the significance of small and non-monumental localities in comprehending social organisation, technology practice and life in general. The sites offer information about the daily life activities, resource exploitation, and the decision making activities that are not very well known in the archaeological accounts where major centres or elite contexts prevail. (Joyce, 2001; Wilk & Rathje, 1982). Gurha Shahan has a value in this respect that it will add to the evidence base about reconstructing settlement dynamics and technology level among the Potohar Plateau to supplement evidence based on sites of more vigorous research.

Significance of the Site

The archaeological importance of the Gurha Shahan site is the variety and coexistence of materials recorded at one surface assemblage. The combination of the presence of pottery, stone tools, faunal remains and metallurgical residues at one locality suggests that there is a repeated and multi functional use of the site as opposed to specialised or narrow focussed occupation. This mix of material type categories gives valuable information on how people led their daily life and the use of technologies in a loose settlement pattern.

One such important finding is the relationship between metallurgical remains and lithic and ceramic materials as it provides quality data on technological decisions and craft activities on the territory. Instead of a clear shift in terms of technology, the grouping implies that there was a

period where older lithic culture developed simultaneously with the growing metal-based culture. This trend underscores the stability and flexibility of the older technologies in the larger technological systems, particularly in the non-urban environments.

On a broader interpretive level, Gurha Shahan is a part of the current debates about the pace and character of technological change within the framework of northern South Asian regions. The site gives evidence that technological use was most probably slow, not centrally based and affected by practices and social settings and not consistent or discontinuous. Being a small non-monumental locality, Gurha Shahan underscores the significance of such sites in reconstructing technological behaviour and the daily life, supplementing this information with information obtained on larger sites or those under the microscope.

Conclusion

This paper has provided a preliminary archaeological summary of the Gurha Shahan site that has proven to have relevance as a previously poorly documented locality of the Potohar Plateau and the broader landscape of Soan Valley. Both the variety of the surface assemblage (including pottery, lithic artefacts, faunal remains, and metallurgical residues) and the variability of the pattern of human activity (including domestic practices, subsistence-related behaviour, and small-scale craft activities) show that the site represented a sophisticated structure of activities. This material diversity has emphasized how non-monumental sites are important in recognizing settlement systems and day-to-day life outside the large cities or ceremonial centres in South Asia (Coningham, 2015; G. Possehl, 2002).

The fact that several types of material culture occurred at Gurha Shahan indicates that technological and technical work was not setting aside into specialised or vacuolised situations, rather was a subset of more inclusive and ordinary operations that weighed heavily on day to day life in the region. Specifically, the correlation of metallurgical remains with both ceramic and lithic materials reinforces the ways of understanding technology as a socially and economically instantiated activity, and not as a sequence of sudden or linear technological changeovers (Dobres, 2000; Lemonnier, 1992). Gurha Shahan material evidence conforms to the wider archeological view, which highlights continuity, process of adapting and selective adoption in technological change.

The existence of metallurgical signs and known lithic and ceramic traditions adds to the discussion of northerly South Asian regions in technological adoption with regard to pace and nature. Instead of capturing a rapid or homogeneous change, Gurha Shahan assemblage helps to sustain a type of model where the new technologies were gradually added, contextually depending on the current practices, knowledge, and social organisation (Petraglia & Allchin, 2007; Wright, 2010). This trend is especially dramatic in non-urban environments, where technological versatility usually featured centrality in community resilience and adaptation.

It should be noted that the interpretations that will be provided in this report are tentative, due to the nature of surface based data. There is no way that cultural, chronological and functional attributions can be established with security until there is some additional investigation (Costin, 1991; Hirth, 2009). As a result, systematic survey, excavation under control, and laboratory-based analytical research, such as ceramic petrography, lithic use-wear analysis, faunal identification, and compositional analysis of metallurgical remains are highly encouraged. It would not only enhance the interpretation of Gurha Shahan itself, but also make a wider contribution to the discussion of matters relating to craft organisation, mobility, and the use of the landscape in the Potohar Plateau, and the greater north South Asian region in general.

References

1. Banning, E. B. (2002). Archaeological survey. Springer.
2. Binford, L. R. (1980). Willow Smoke and Dogs' Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation. American Antiquity, 45(1), 4–20. https://www.jstor.org/stable/279653?seq=1
3. Cherry, J. F. (1983). Frogs round the pond: Perspectives on current archaeological survey projects in the Mediterranean region. Archaeological survey in the Mediterranean area, 155, 375-416.
4. Coningham, R., and Ruth Young. (2015). The Archaeology of South Asia: From the Indus to Asoka, c. 6500 BCE–200 CE. Cambridge University Press.
5. Costin, C. L. (1991). Craft Specialization: Issues in Defining, Documenting, and Explaining the Organization of Production. Archaeological Method and Theory, , 4(8). https://www.jstor.org/stable/20170219?seq=1
6. Craddock, P. T. (1995). Early metal mining and production (Vol. 363). Edinburgh University Press Edinburgh.
7. Dennell, R. (2008). The palaeolithic settlement of Asia. Cambridge University Press.
8. Dobres, M.-A. (2000). Technology and social agency: outlining a practice framework for archaeology. John Wiley & Sons.
9. Haselgrove, C. (1981). The Archaeology of Mobility: Nomads in the Archaeological Record. World Archaeology. https://www.tandfonline.com/doi/citedby/10.1080/00438243.1981.9979818?scroll=top&needAccess=true
10. Hirth, K. (2009). Craft Production, Household Diversification, and. Housework: craft production and domestic economy in ancient Mesoamerica(19), 13.
11. Joyce, A. A., & Lopiparo, J. (2001). Postclassic household organization at Río Viejo, Oaxaca, Mexico. Journal of Archaeological Research. https://www.ancientamericas.org/sites/default/files/99012Joyce01.pdf
12. Kunlong¹, C., & Yong, L. (2024). Further Reading Tylecote RF (1976) A history of metallurgy. The Metal Society, London. The ECPH Encyclopedia of Mining and Metallurgy, 186.
13. Lemonnier, P. (1992). Elements for an Anthropology of Technology (Vol. 88). U OF M MUSEUM ANTHRO ARCHAEOLOGY.
14. Muhammad Tariq Khan, M. S., at al (2021). Application of Machine Learning Techniques in Rainfall–Runoff Modelling of the Soan River Basin, Pakistan. Water. https://www.researchgate.net/publication/356923957_Application_of_Machine_Learning_Techniques_in_Rainfall-Runoff_Modelling_of_the_Soan_River_Basin_Pakistan
15. Odell, G. H. (2006). Lithic analysis. Springer Science & Business Media.
16. Orton, C., & Hughes, M. (2013). Pottery in archaeology. Cambridge University Press.
17. Petraglia, M. D., & Allchin, B. (2007). The evolution and history of human populations in South Asia: Inter-disciplinary studies in archaeology, biological anthropology, linguistics and genetics (Vol. 464). Springer.
18. Possehl, G. (2002). The Indus Civilization: A Contemporary Perspective. AltaMira Press.
19. Possehl, G. L. (2002). Indus-Mesopotamian trade: The record in the Indus. Iranica Antiqua, 37, 325-342.
20. Reitz, E. J., Andrus, C. F. T., & Sandweiss, D. H. (2008). Ancient fisheries and marine ecology of coastal Peru. Human impacts on ancient marine ecosystems: a global perspective, 125-146.

21. Renfrew, C., and Paul Bahn. (2016). Archaeology: Theories, Methods, and Practice 7th ed. Thames & Hudson.
22. Rice, P. (1987). Pottery Analysis. a Sourcebook: University of Chicago Press. In: Chicago.
23. Rissetto, J. D. (2010). Andrefsky, Jr., W.(ed.)--Lithic Technology. PaleoAnthropology, 2010, 212-214.
24. Rosen, S. A. (1997). Lithics after the Stone Age: a handbook of stone tools from the Levant. Bloomsbury Publishing PLC.
25. saleem, M. (1978). Cultural Study of Civilizations.
26. Saleem, M. (1986). Water and Human Development in the Potohar Region.
27. Saleem, M. K., Ashraf; and Colleagues. (1987). Palaeo-environment of Soan Valley and Palaeolithic sites of PS-4B and PS-21 near Gurha Shahan in Rawalpindi District, northern Pakistan. 1987. . Journal of Central Asia 10: 123–192. https://www.researchgate.net/publication/372189527_Palaeo-_Environment_of_Soan_Valley_and_Palaeolithic_Sites_of_PS-4B_and_PS-21_Near_Gurha_Shahan_in_Rawalpindi_District_Northern_Pakistan_1987_Journal_of_Central_Asia_Vol10_pp123-192
28. Schiffer, M. B. (1987). Formation processes of the archaeological record.
29. Singh, G. (1971). The Indus Valley culture: Seen in the context of post-glacial climatic and ecological studies in north-west India. Archaeology & Physical Anthropology in Oceania, 6(2), 177-189.
30. Wilk, R. R., & Rathje, W. L. (1982). Household archaeology. American behavioral scientist, 25(6), 617-639. https://journals.sagepub.com/doi/10.1177/000276482025006003
31. Wright, R. (2010). The Ancient Indus. Cambridge University Press, Cambridge.

Appendix

Appendix A. Catalogue of Pottery Sherds from the Ghoura ShahanSite (n = 36)

Cat. No.	Sherd Type	Length	Width	Decoration	Colour	Thickness	Remarks
P-1	Body sherd	6.2cm	9.5cm	Painted horizontal bands	Reddish-buff	5 mm	Surface abrasion
P-2	Body sherd	9.5cm	4.2cm	Indistinct painted motif	Buff	7 mm	Weathered surface
P-3	Body sherd	4.7	7.2	Painted intersecting bands	Red	1.1cm	Pigment well preserved
P-4	Body sherd	4.2cm	7.2cm	Painted vertical band	Reddish-buff	1cm	Minor edge damage
P-5	Body sherd	5.3cm	5.6cm	Painted horizontal bands	Red	3 mm	Surface worn
P-6	Body sherd	7cm	12cm	Painted curved bands	Red-brown	6mm top	Abraded surface

P-7	Body sherd	3cm	2.5cm	Painted diagonal stripes	Reddish-buff	3 mm	Weathered
P-8	Body sherd	3.8cm	3.1cm	Grey-brown	Grey-brown	7 mm	Decorative elements visible
P-9	Body sherd	8.5cm	8cm	Painted cross-hatched pattern	Red	6 mm	Surface worn
P-10	Body sherd	7cm	5.3cm	Painted horizontal stripes	Reddish-buff	8 mm	Even firing
P-11	Body sherd	5cm	6.2 cm	Painted abstract motif	Red	6 mm	Pigment preserved
P-12	Body sherd	3.7 cm	5.3 cm	Painted horizontal bands	Brown-red	3 mm	Slight erosion
P-13	Body sherd	8.5 cm	9 cm	Painted geometric motif	Red	8 mm	Clear decoration
P-14	Body sherd	1.8cm	7.1 cm	Painted intersecting lines	Reddish-buff	8 mm	Surface abrasion
P-15	Body sherd	5.1 cm	8.2 cm	None visible	Buff-grey	9 mm	Possibly eroded decoration
P-16	Body sherd	8.1 cm	8.6 cm	None	Reddish-buff	9 mm	Plain surface
P-17	Body sherd	3.2 cm	3.3 cm	None	Light buff	7 mm	Heavily weathered
P-18	Body sherd	6.1 cm	5.2 cm	Incised impressions	Reddish-buff	8 mm	Tool marks visible
P-19	Body sherd	5.9 cm	5.6 cm	None	Yellowish-buff	6 mm	Plain ware
P-20	Rim sherd	9 cm	2 cm	None	Reddish-buff	2.2 cm	Slight rim curvature
P-21	Rim sherd	4.1 cm	8 cm	None	Buff	7 mm	Even firing
P-22	Rim sherd	3.3 cm	11.3 cm	None	Red	8 mm	Interior soot traces
P-23	Rim sherd	4.1 cm	6.1 cm	Painted band	Red	1 cm	Partial rim preserved
P-24	Rim sherd	4.1 cm	4.5 cm	None	Grey-buff	7 mm	Weathered
P-25	Rim sherd	13 cm	-------	None	Brown-grey	1.5 cm	Rounded rim

P-26	Rim sherd	2.1 cm	4 cm	None	Reddish-buff	8 mm	Thickened rim
P-27	Ring base	4.5 cm	5 cm	None	Reddish-buff	9 mm	Circular base
P-28	Pedestal base	4.8 cm	-	None	Buff	-	Central boss preserved
P-29	Pedestal base	6.3 cm	8 cm	None	Grey-buf	1.3 cm	Broken edge
P-30	Pedestal base	5.5 cm	4.2 cm	None	Reddish-buff	1.3 cm	Moderate preservation
P-31	Pedestal base	5.4 cm	3.3 cm	Central perforation	Central perforation	2.2 cm	Perforation intact
P-32	Disc base	3.9 cm	3.9 cm	None	Buff-red	1 cm	Flat base
P-33	Vessel element	4 cm	6.5 cm	None	Buff	--	Thickened profile
P-34	Vessel element	6 cm	4 cm	None	Reddish-buff	1 cm	Possibly base section
P-35	Body sherd	3.6 cm	2.6 cm	None	Dark grey	6 mm	Thick coarse ware
p-36	Body sherd	6 cm	4.9 cm	None	Reddish-brown	1.5 cm	Heavy-duty vessel

Appendix B. Catalogue of Stone Tools and Lithic Material from the Ghoura ShahanSite (n = 12)

A. Chipped Stone Tools and Flakes (Cat. Nos. ST-1–ST-5)

Cat. No.	Artefact Type	Length	Manufacturing Evidence	Width	Thickness
ST-1	Flake	2.3 cm	Irregular flake scars	5.1 cm	1.1 cm
ST-2	Blade-like flake	9 cm	Elongated flake removal	2.3 cm	4 mm
ST-3	Flake	6.5 cm	Conchoidal fracture	3 .5 cm	1.1 cm
ST-4	Flake	5 cm	Irregular flake scars	3.2 cm	2 mm
ST-5	Flake / fragment	1.1 cm	Natural and flaked edges	5.1 cm	3 mm

B. Lithic Cores and Debitage (Cat. Nos. ST-6–ST-9)

Cat. No.	Artefact Type	Length	Manufacturing Evidence	Width	Thickness
ST-6	Core	8 cm	Multiple flake	13 cm	1.5 cm

			scars		
ST-7	Core	12 cm	Irregular removals	10 cm	1.3 cm
ST-8	Debitage fragment	8.5 cm	Cortical surface present	6 cm	1 cm
ST-9	Debitage fragment	16. 5 cm	Partial flake scars	9.2 cm	4.2 cm

C. Ground Stone Tools (Cat. Nos. ST-10–ST-12)

Cat. No.	**Artefact Type**	**Length**	**Manufacturing Evidence**	**Width**	**Thickness**
ST-10	Ground stone tool	6 cm	Smoothed surface	3.2 cm	1.8 cm
ST-11	Ground stone tool	4.5 cm	Smoothed and rounded	2.5 cm	1.5 cm
ST-12	Ground stone tool	7 cm	Smoothed facets	12 cm	4 cm

Appendix C. Catalogue of Slag Fragments from the Ghoura ShahanSite (n = 6)

Cat. No.	**Artefact Type**	**Length**	**Manufacturing Evidence**	**Width**	**Thickness**
SL-1	Slag Fragment	3.1 cm	Vesicular surface, rough texture	2.6 cm	2.7 cm
SL-2	Slag Fragment	2.4 cm	Dense surface with limited vesicles	3.5 cm	1.2 cm
SL-3	Slag Fragment	4.2 cm	Highly vesicular, porous texture	3.5 cm	2.8 cm
SL-4	Slag Fragment	3.2 cm	Compact surface, few vesicles	3.3 cm	2 cm
SL-5	Slag Fragment	2.5 cm	Vesicular surface with oxidation	2.3 cm	2 cm
Sl-6	Slag Fragment	3 cm	Dense, weathered surface	3.5 cm	7 cm
Sl-7	Slag Fragment	8 cm	Dense, weathered surface	2 mm	1.3 cm

Appendix D. Catalogue of Faunal Remains from the Ghoura ShahanSite (n = 10)

A. Long Bones and Fragments (Cat. Nos. FR-1–FR-3)

Cat. No.	**Element**	**Length**	**Width**	**Preservation**	**Remarks**

FR-1	Long bone	33 cm	---	Moderate	Shaft fragment, weathered surface
FR-2	Long bone	9 cm	5 cm	Moderate	Epiphyseal ends incomplete
FR-3	Long bone fragment	5 cm	2 cm	Poor	Broken and abraded

B. Flat and Irregular Bones and Fragments (Cat. Nos. FR-4–FR-9)

Cat. No.	Element	Length	Width	Preservation	Remarks
FR-4	Flat bone fragment	38.5 cm	12.cm	Moderate	Possibly scapular fragment
FR-5	Bone fragment	4 cm	3 cm	Poor	Highly weathered
FR-6	rregular bone fragment	6.5 cm	1.3 cm	Poor	Fragmentary, eroded surface
FR-7	Bone fragment	14 cm	10 cm	Poor	Elongated fragment
FR-8	Spongy bone fragment	3 cm	2.8 cm	Poor	Trabecular structure visible
FR-9	one fragment	6.5 cm	1.2 cm	Poor	Surface erosion present

C. Tooth and Mandible Fragments (Cat. No. FR-10)

Cat. No.	Element	Length	Width	Preservation	Remarks
FR-10	Tooth / mandible fragment	5 cm	2.9 cm	Moderate	Dental structure preserved

5

[5] (A) (Painted body sherds (1-19) of various types painted with different geometric and linear decorative patterns using both red and dark paint on the utilitarian ceramic fabric.
(B) Diagnostic pieces of ceramics (20–26), mostly rim fragments, which depict a difference in morphology and surface treatment of vessels.
(C) Ring and pedestal bases (27-32), denoting the variety of shapes of the vessel base in relation to utilitarian and possibly storage purposes.
(D) Diagnostic vessel fragments (33-34), such as the bottom and lower body parts, which lead to restoring the shape and functioning of the vessels.
The body sherds of the Thick coarse-ware (35-36) are thick, rough, with fabric-intensive and surface-poor treatment, as seen in robust domestic wares.
All the materials were reported by non-invasive survey of the surface and they are being preserved at the Taxila Institute of Archaeology and Civilizations (TIAC), Quaid-i-Azam University, Islamabad. Scale shown in centimeters.

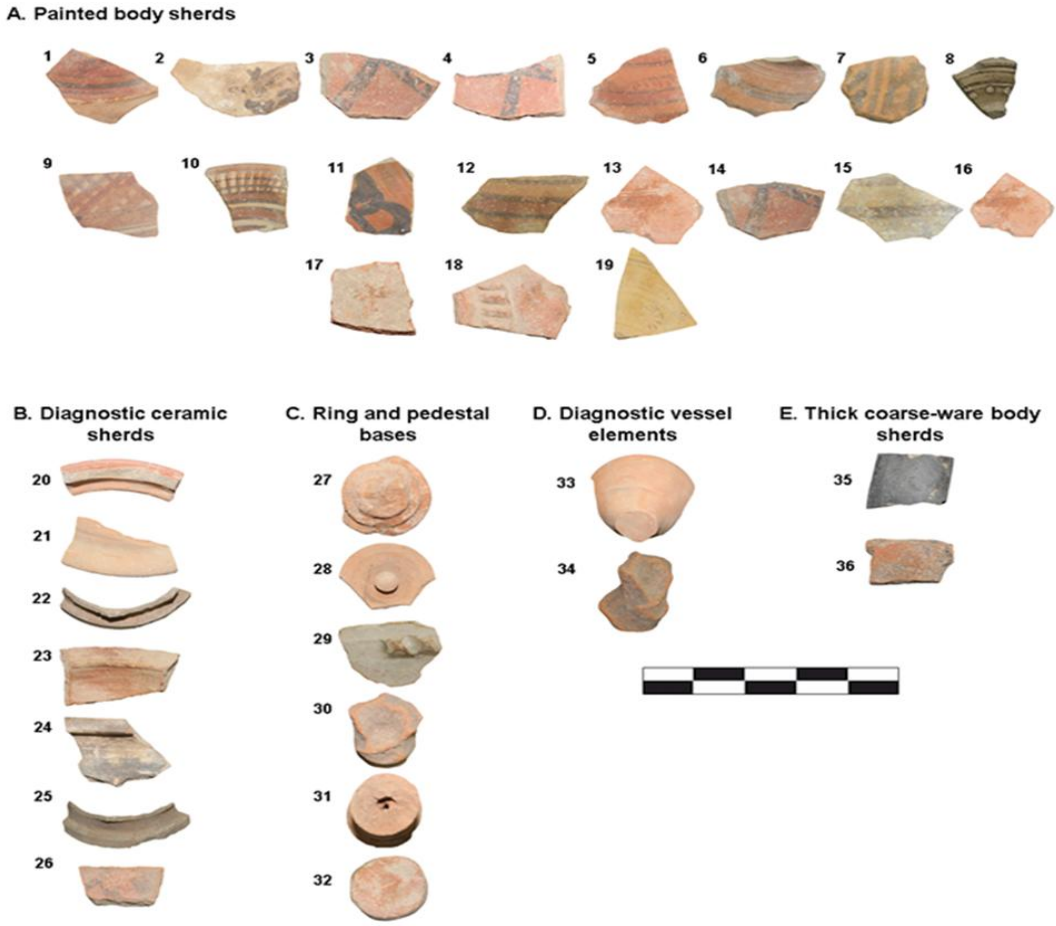

***Figure 2:Ceramic assemblage from the Gurha Shahan site, District Rawalpindi. Source Author*[7]**

Figure 3:Stone tools and lithic material from the Gurha Shahan site. Source Author [6]

[6] The artefact assemblage of stone includes chipped stone tools and flakes, lithic cores and debitage, and ground stone tools. The content depicts the various phases of the lithic production such as flake removal, core reduction, and

Figure 4:Slag fragments recorded at the Gurha Shahan site. Source Author [7]

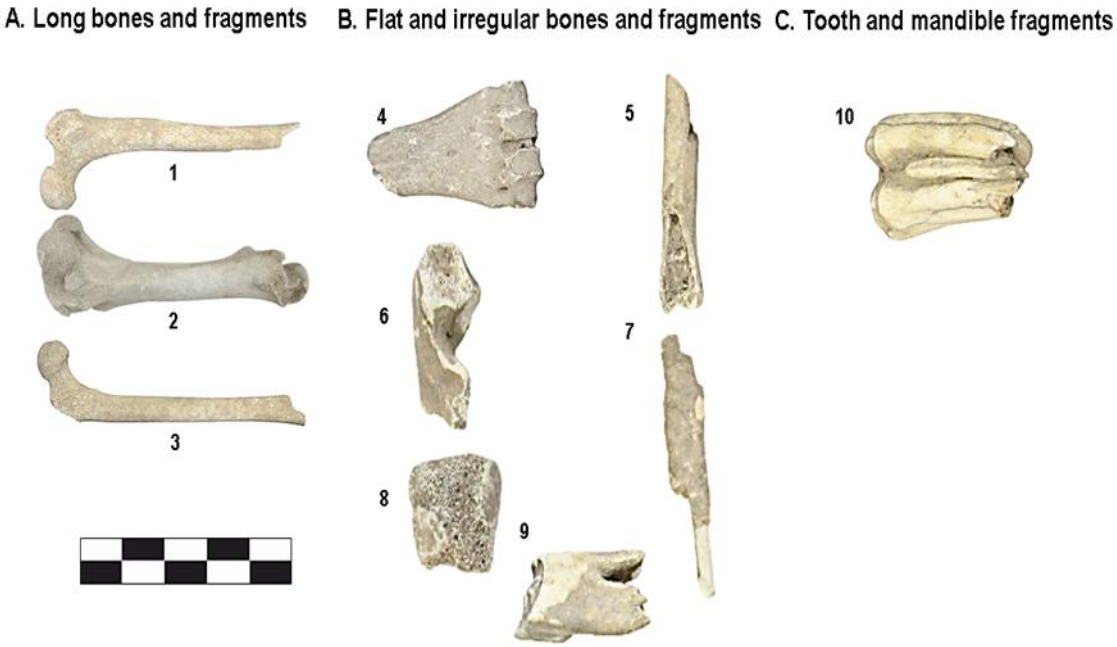

Figure 5:Faunal remains recovered from the Gurha Shahan site. Source Author [8]

shaping ground stones. All artefacts were recorded in context and no technological or chronological assigning is put forward based on surface information.

[7] The slag assemblage comprises of irregular and vesicular fragments having different surface textures and levels of weathering. These materials are compatible with metallurgical activity by-products. The slag was salvaged in the surface contexts and is considered with considerable reservations to be pieces of evidence of the metalworking process without the attribution of particular techniques and dates of production.

[8] The faunal materials of the location are fragments of long bones, flat and irregular bone fragments, and tooth or mandible fragments. The remains are all fragmentary and of different extent of surface weathering. There is no identification of the species or subsistence interpretation done at this point of the research.